Water quality improvement through international cooperation on the Rhine

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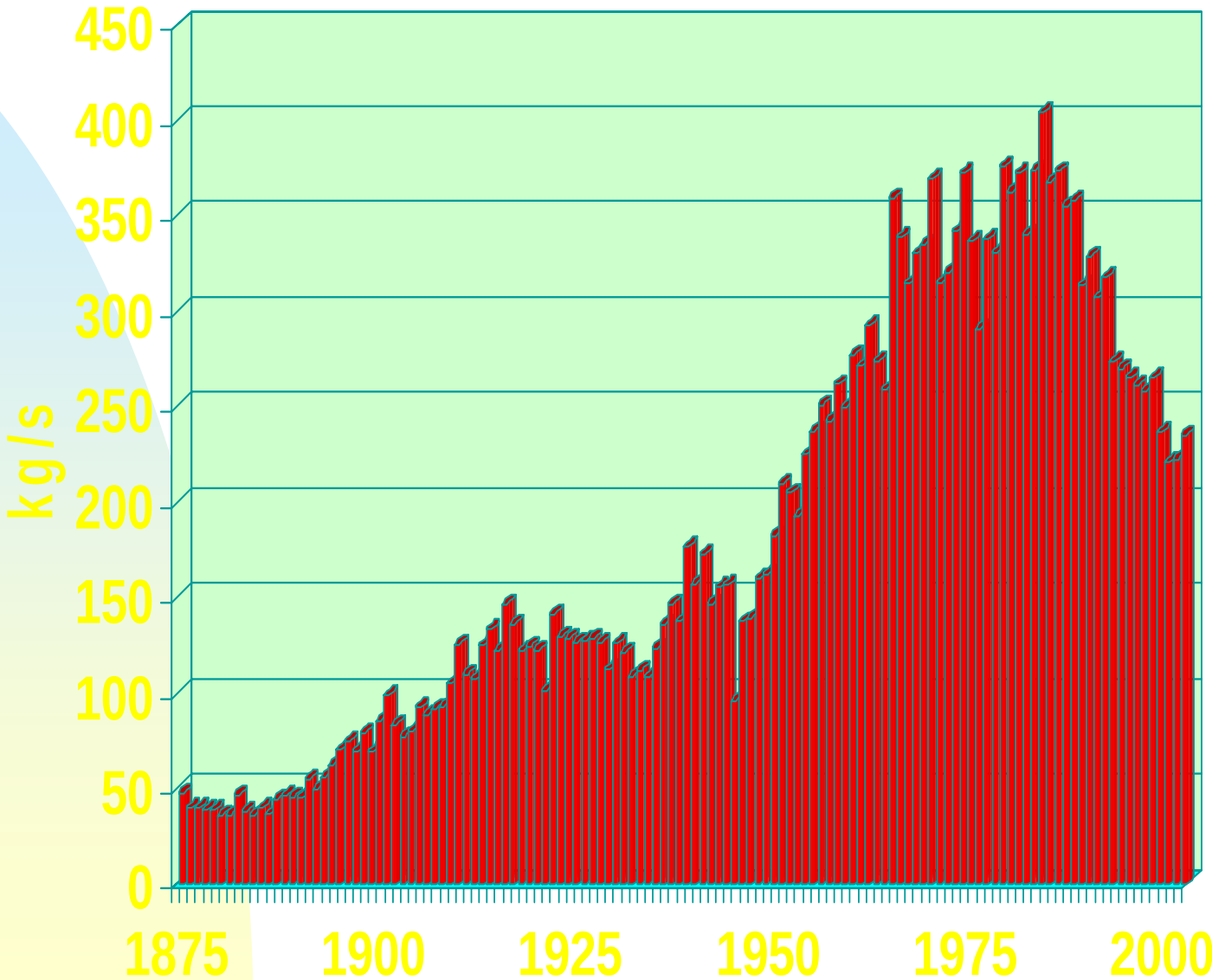
Pollution problems in drinking water production from the Rhine

1 *First half of last century*

- Chloride main issue
  - French salt mines
  - German coal mines

Chloride load at German-Dutch border



Pollution problems in drinking water production from the Rhine

2 Second half of last century

- Heavy pollution of the Rhine
  - Industrial chemicals
  - Nutrients / pesticides

The governmental level

- 1815 Vienna Peace Conf on Rhine navigation
- 1885 Salmon treaty Netherlands – Germany
- ***1932 Dutch complaints to upstream states about water pollution***
- 1950 International Rhine Committee
  - Chemical treaty & Chloride treaty 1976
- 2000 EU Water Framework Directive

The drinking water level

- Water quality improvement too slow
  - Irritation about bureaucracy, Dutch political attitude *(too "soft")*
- 1952 founding of RIWA *(Dutch River Water utility association)*
  - 4 major utilities supplying to ~20% of the Dutch population

RIWA

Mission: Source water quality should allow drinking water production using simple treatment only!

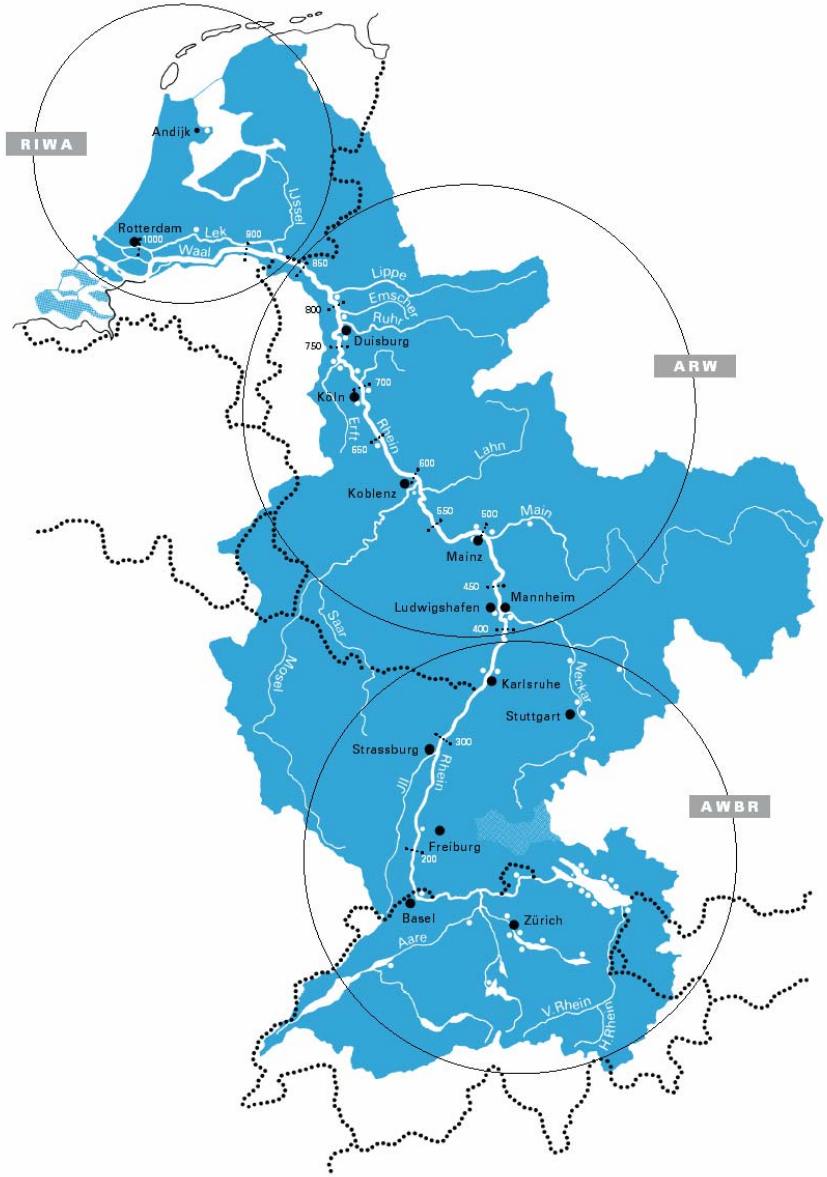
- Initially “Pressure group” fighting water pollution
- Confronting polluters / decision makers with WQ data and demands
  - Strategy: actions based on sound science / hard evidence only!
  - Gradual shift from confrontation to cooperation
- 1970 founding of IAWR

IAWR today

Umbrella organization of 3 Associations

RIWA:	Netherlands
ARW:	lower Germany
AWBR:	upstream Germany, Switzerland

120 utilities



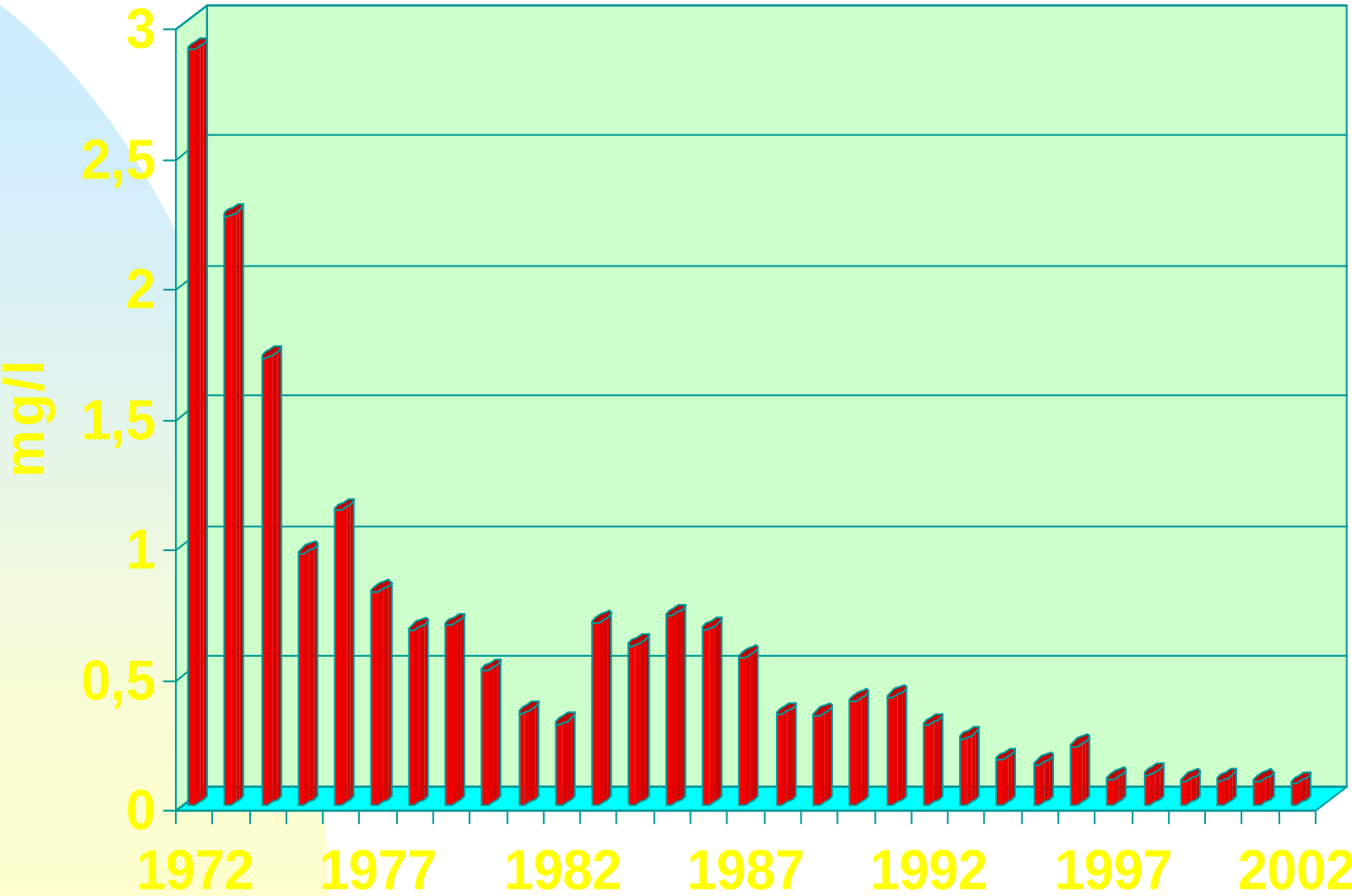
Output

- Annual WQ reports
- Research reports
  - Toxicity (Mutagenicity, Endocrine disruption,…)
  - Emerging substances (Pharmaceuticals, MTBE,…)
  - Properties of industrial contaminants (degradation, metabolites,…)
- Brochures (Pesticides)
- Memoranda & Policy Statements

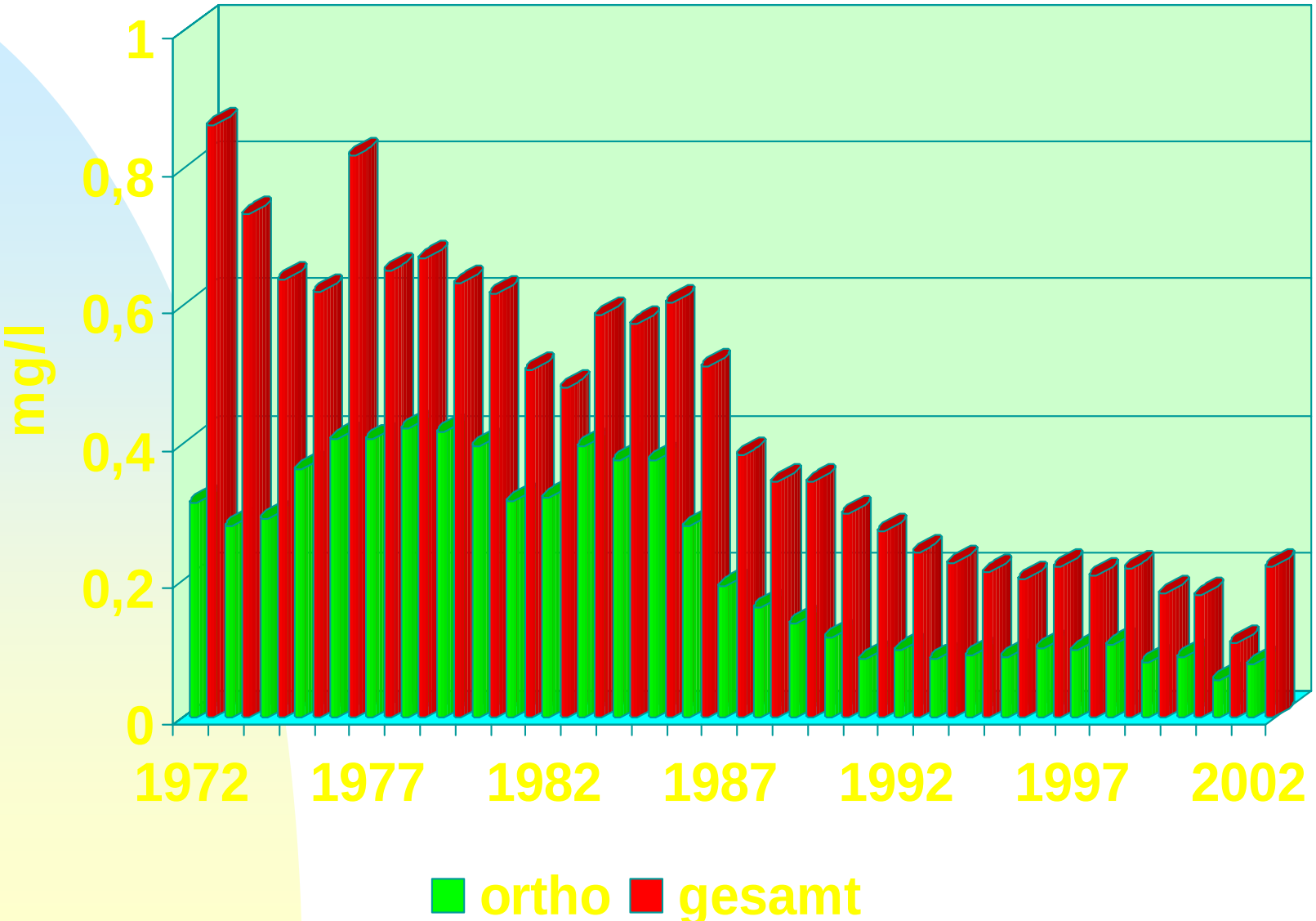
What have we achieved?

- Dramatic improvement in Rhine water quality since the 1970s

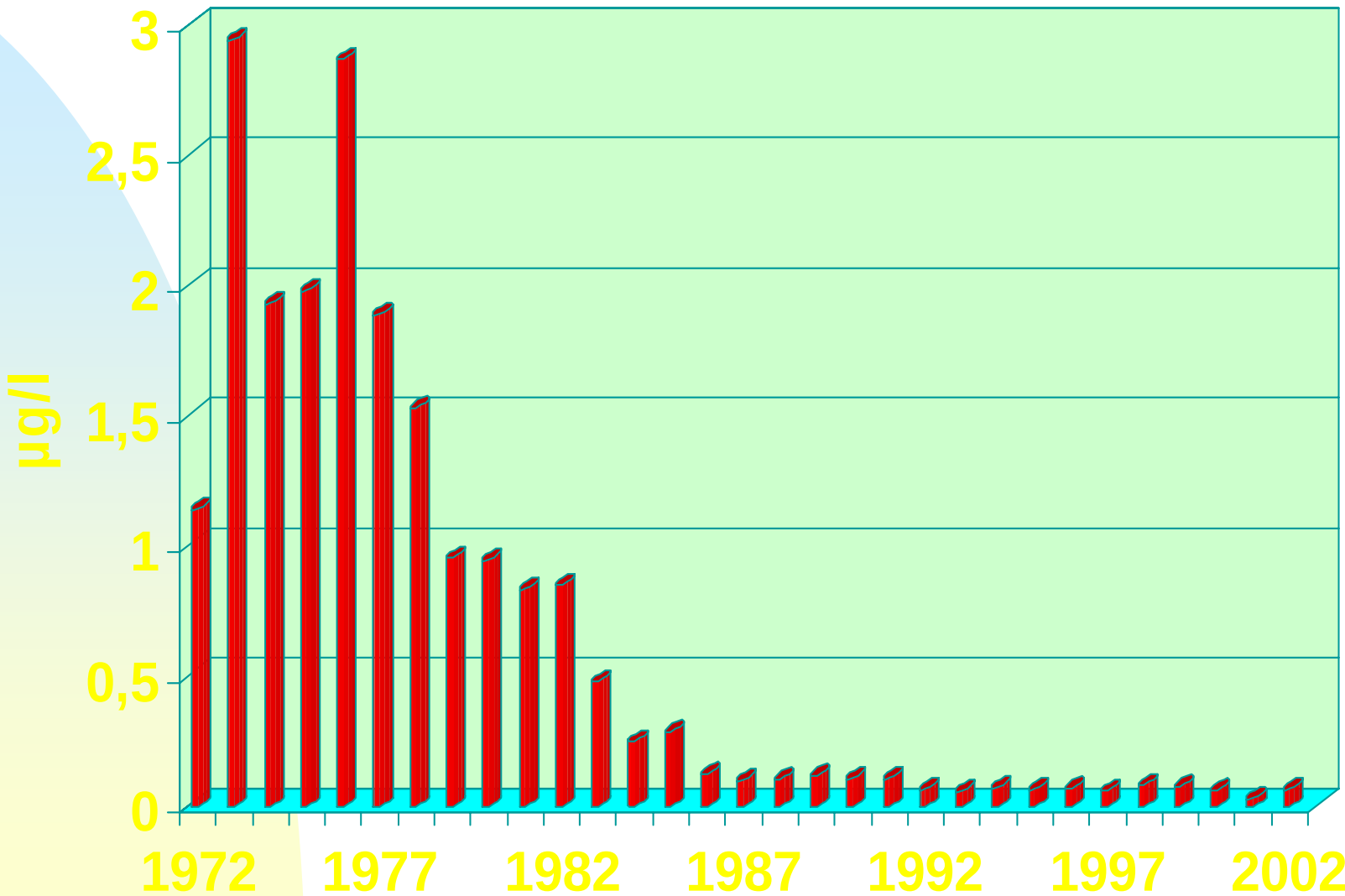
Ammonium(N) at German-Dutch border



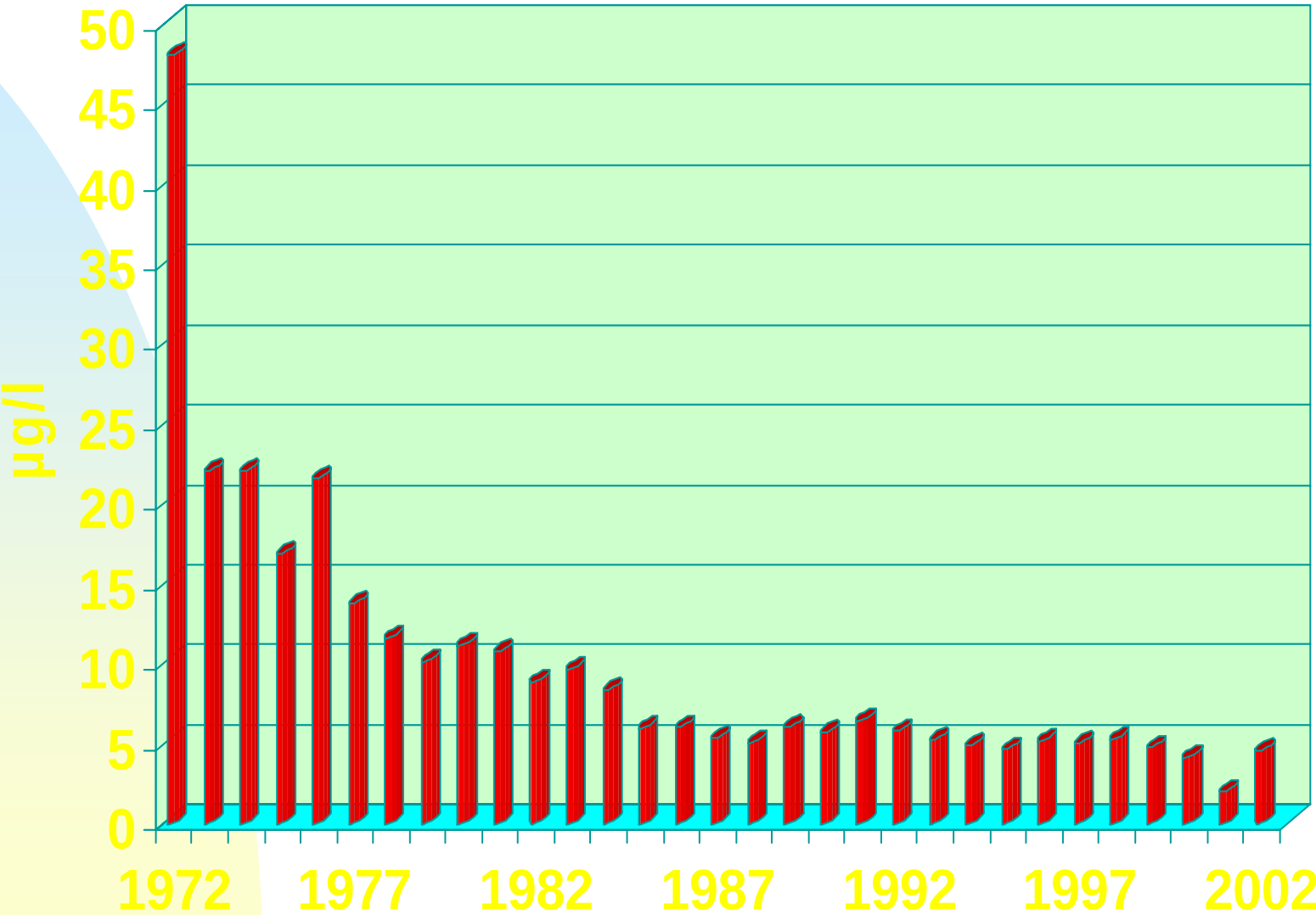
Phosphate (P) at German-Dutch border



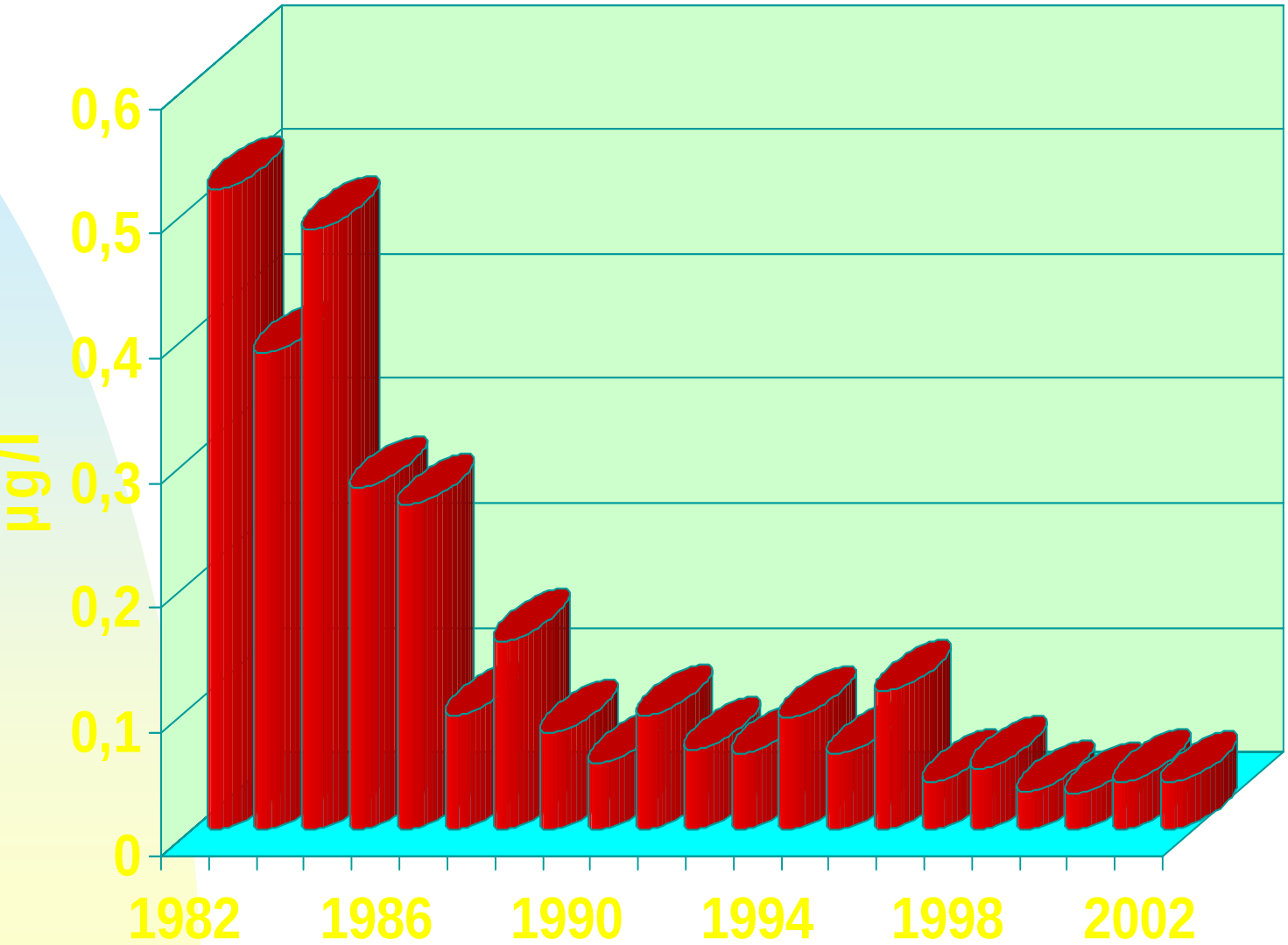
Cadmium concentration (annual means)



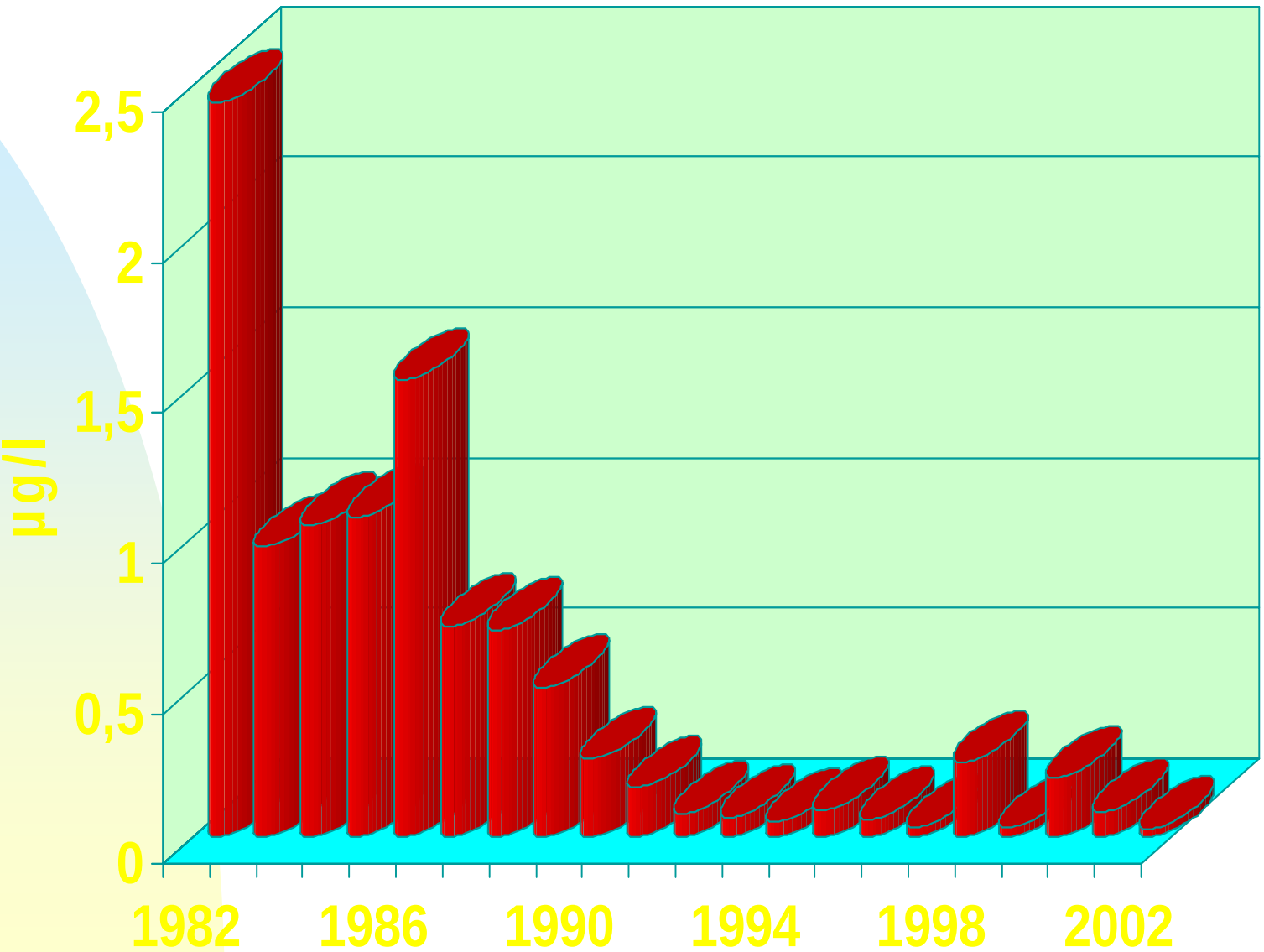
Copper concentration (annual means)



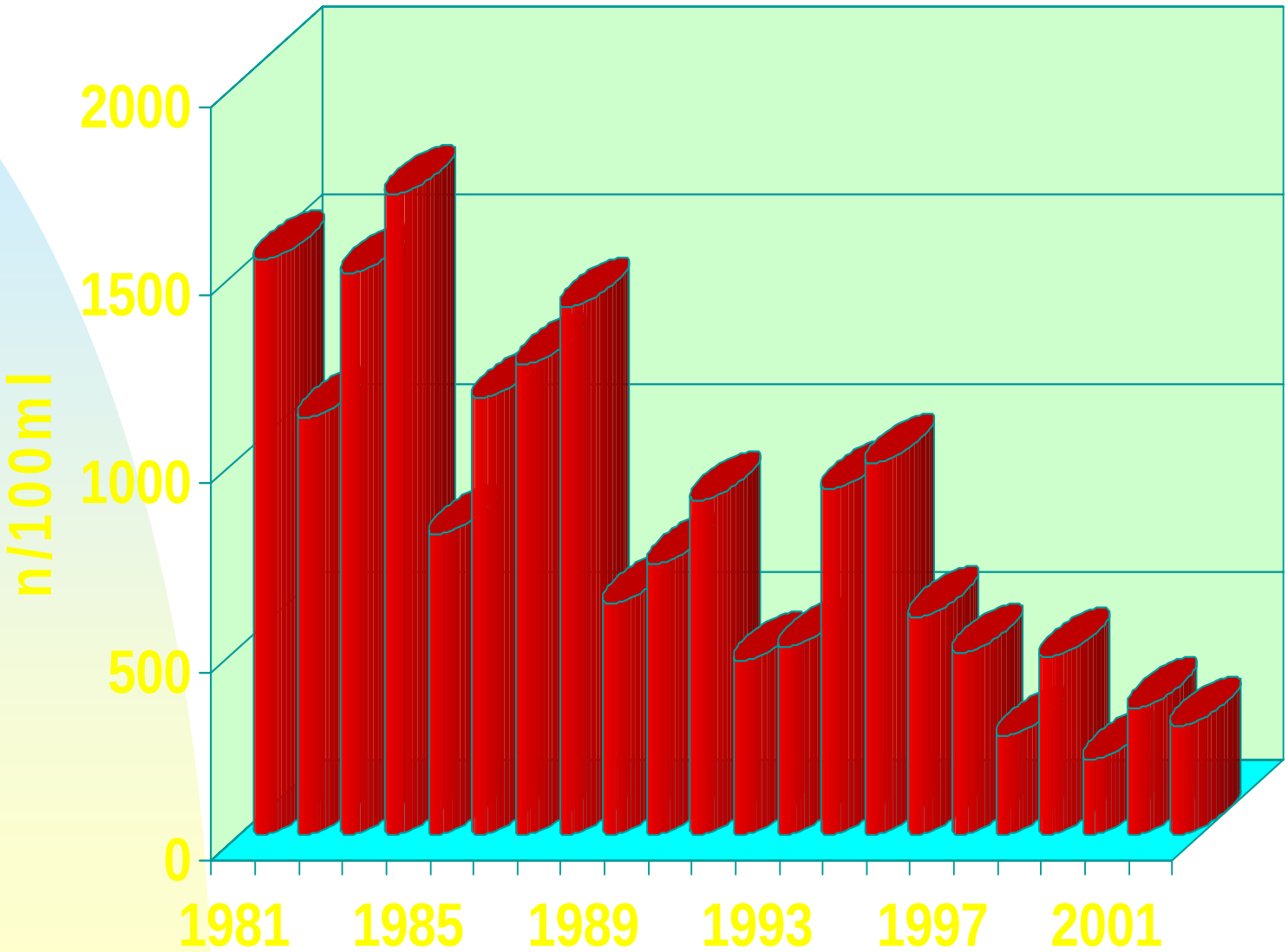
Tetrachloro ethene (annual means)



Trichloromethane (annual means)



Fecal Streptococci (annual means)



Positive / hopeful findings

- IRC “State-of-the-art” report 2003
- Migratory fish returning
- Rhine water quality almost drinking water quality
- WQ protected by EU / nat’l directives

BUT…

Improvements mostly “classical pollutants”

- Heavy metals, nutrients, chlorinated solvents, industrial organics PAH, PCB etc.

Virtually no “emerging substances”

- Pharmaceuticals, XRFs, EDCs, biocides, new pesticides, additives (MTBE, dyes, fragrances,…)

Current situation

- Pharmaceuticals, X-ray contrast media, MTBE detected in source water
- Rumors about antibiotics resistance transfer from STPs
- EDC effects in waterbodies

- Public concern
- Reluctance to act at governmental level
  - Budget problems, recession
  - EUWFD efforts

IAWR Memorandum 2003

The water quality of the Rhine should allow the production of drinking water with simple treatment only.

- statements (discharges, spills, precautionary principle, …)
- WQ standards allowing DW production with simple treatment

4th update since 1973

Policy statement on MTBE and Pharmaceuticals / XRFs

- Scientific reports issued
- Press releases
- Discussion with gasoline producers (MTBE) and Water authorities

The Future

- ***Water quality***
  - Increased research into emerging issues
  - Relevant standards included in WFD
    - Current scope highly ecologically oriented
- ***Lobbying***
  - Influence of nat'l governments decreasing, EU more important
  - Intensify cooperation with other (internat'l) utility assoc'ns
    - Danube, Meuse, Seine,…
- ***Publicity***
  - Balance between public concern and political attention

Complicating factor

IAWR

- Bank filtration (German utilities) less affected by sudden spills
- Language / cultural differences

Political level

- Budget constraints, reluctance to act
- Competence debates

RIWA / IAWR website

www.riwa.org

- General description
- Research report pdfs
- Memorandum pdf (1.44 MB)